

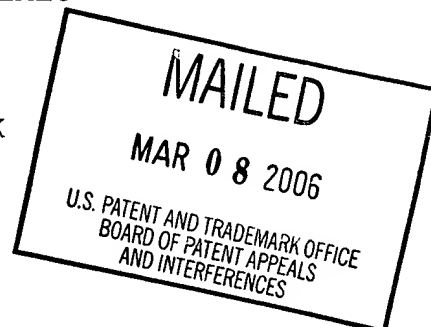
The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOHN CHARLES CLARK
and
JOSEPH WILLIAM FRISK

Appeal No. 2006-0581
Application 09/997,082



ON BRIEF

Before KIMLIN, GARRIS, and PAK, Administrative Patent Judges.
KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 10-19. Claims 1-9 stand withdrawn from consideration. Since claim 10 is dependent upon claim 1, claims 1 and 10 are reproduced below:

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1. A method of making a hydrophobic carbon fiber construction comprising the steps of:

- a) immersing a carbon fiber construction in an aqueous dispersion of a highly fluorinated polymer;
- b) contacting said dispersion with a counterelectrode; and
- c) electrophoretically depositing said highly fluorinated polymer on said carbon fiber construction by applying electric current between said carbon fiber construction and said counterelectrode.

10. The hydrophobic carbon fiber construction made according to the method of claim 1.

The examiner relies upon the following references as evidence of obviousness:

Lenfant et al. (Lenfant)	3,573,991	Apr. 6, 1971
Breault	3,972,735	Aug. 3, 1976
Kosuda et al. (Kosuda)	4,897,286	Jan. 30, 1990
Zuber et al. (Zuber)	6,803,143	Oct. 12, 2004

Appellants' claimed invention is directed to a hydrophobic carbon fiber construction made by emerging the construction in an aqueous dispersion of a highly fluorinated polymer, and electrophoretically depositing the polymer on the carbon fiber construction. According to appellants, "[t]his invention is useful in the manufacture of a fuel cell component known as a 'gas diffusion layer.'" (page 3 of principal brief, last sentence).

The appealed claims stand rejected under 35 U.S.C. § 103(a) as follows:

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(a) claims 10-19 over Zuber in view of either Lenfant or Kosuda,

(b) claims 10-16 and 19 over Breault in view of either of Lenfant or Kosuda,

(c) claims 17 and 18 over Breault in view of either Lenfant or Kosuda further in view of Zuber.

We have thoroughly reviewed each of appellants' arguments for patentability, as well as the specification data relied upon in support thereof. However, we are in complete agreement with the examiner that the claimed subject matter would have been obvious to one of ordinary skill in the art within the meaning of § 103 in view of the applied prior art. Accordingly, we will sustain the examiner's rejections for essentially those reasons expressed in the answer.

There is no dispute that both Zuber and Breault, the two primary references, disclose, like appellants, a method of making a hydrophobic carbon fiber construction by emerging the construction in an aqueous dispersion of a highly fluorinated polymer. As recognized by the examiner, neither Zuber nor Breault teaches the electrophoretic deposition of the polymer on the carbon fiber construction. However, we agree with the examiner that Kosuda

evidences the obviousness of employing an electrophoretic method for effecting the deposition of the polymer on the carbon fiber construction.

While Kosuda does not expressly teach a highly fluorinated polymer as the polymer to be electrophoretically deposited, Kosuda is directed to the electrophoretic deposition of thermoplastic resins, in general, on a carbon fiber structure. Kosuda teaches that the electrophoretic method provides a uniform impregnation of the polymer resulting in a carbon fiber construction having good mechanical properties. While Kosuda teaches methods of coating other than electrophoresis, the reference specifically states that "[i]n order to enhance the effects of the present invention, the powder of a thermoplastic resin may be impregnated and deposited on carbon fibers by electrophoretically [sic], i.e., by applying a direct current between the suspension and carbon fibers immersed in the suspension" (column 5, lines 50-56). Accordingly, based on the collective teachings of either Zuber or Breault and Kosuda, we are satisfied that one of ordinary skill in the art would have had the requisite reasonable expectation of successfully providing a uniform coating of a highly fluorinated polymer on a carbon fiber construction by utilizing the electrophoresis taught by Kosuda.

In submitting that the examiner has failed to establish a prima facie case of obviousness, appellants contend that "[t]he Examiner points to no teaching in any of the cited references of a process which includes step C) recited in the claims: electro-phoretically depositing a highly fluorinated polymer from a dispersion onto a carbon fiber construction" (page 5 of principal brief, penultimate paragraph). Appellants' argument is tantamount to maintaining that none of the applied references describes the claimed invention within the meaning of Section 102. However, the examiner's rejections are under Section 103 and we are convinced that the collective teachings of the references would have suggested modifying the processes of Zuber and Breault by utilizing the electrophoretic technique of Kosuda. In re Keller, 642 F.2d 413, 425, 202 USPQ 871, 881 (CCPA 1081).

As for claims 12-19 which recite a monolayer coating of fluorinated polymer particles, we agree with the examiner that the obvious modification of Zuber and Breault discussed above would have resulted in a monolayer of polymer particles. Appellants contend that "the Examiner has made no case adequate to shift the burden of proof" to appellants to establish that the proposed modification of Zuber and Breault would inherently result in a monolayer of polymer

particles (page 8 of principal brief, first paragraph). However, appellants have not refuted the rationale set forth at page 8 of the examiner's answer. The examiner points to appellants' definition of "monolayer" in the present specification as optionally including "a layer grown to a thicker depth than one particle if substantially all of the surface has first been covered with a layer of abutting particles having a depth of one particle" (page 3 of specification, first paragraph). Since appellants have defined a monolayer as essentially a uniform layer of no particular thickness, and Kosuda expressly teaches that the electrophoretic coating process results in a uniform coating, it is reasonable to conclude that the process of Kosuda would necessarily result in a monolayer, at least to the degree claimed. As pointed out by the examiner, appellants have not demonstrated otherwise by way of argument or evidence.

Appellants cite specification data which demonstrates that electrophoretic deposition produces a uniform layer, as opposed to the non-uniform layer produced by simple immersion of the substrate in the dispersion. However, appellants have not shouldered their burden of establishing that the specification results would be considered unexpected by one of ordinary skill in the art. In re Merck & Co., Inc., 900 F.2d 1091, 1099, 231 USPQ 375, 381 (Fed.

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Cir. 1986). Indeed, it would appear that, based on the Kosuda disclosure, one would have reasonably expected the results reported in the specification. It is well settled that expected results are evidence of obviousness just as unexpected results are evidence of non-obviousness. In re Skoner, 514 F.2d 747, 460, 186 USPQ 80, 82 (CCPA 1975).

We note that appellants do not provide a separate argument for separately rejected claims 17 and 18 but "assert that this rejection should be reversed for all the reasons given above with regard to the First and Second Issues" (page 15 of principal brief, last paragraph).

In conclusion, based on the foregoing, the examiner's decision rejecting the appealed claims is affirmed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.36(a)(iv) (effective Sept. 13, 2004; 69 Fed. Reg. 49960 (Aug. 12, 2004); 1286 Off. Gaz. Pat. Office 21 (Sept. 7, 2004)).

AFFIRMED

Edward (Ken) C.

Edward C. Kimlin
Administrative Patent Judge

Administrative Patent Judge

Bradley R. Lund

Bradley R. Garri's
Administrative Patent Judge

Chung K. Pak

Chung K. Pak
Administrative Patent Judge

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